

US008102119B2

(12) United States Patent

Farquhar et al.

(10) Patent No.: US 8,102,119 B2 (45) Date of Patent: Jan. 24, 2012

(54)	ENCAPSULATED OPTOELECTRONIC			
	DEVICE AND METHOD FOR MAKING THE			
	SAME			

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35

U.S.C. 154(b) by 120 days.

(21) Appl. No.: 12/510,463

(22) Filed: Jul. 28, 2009

(65) **Prior Publication Data**

US 2010/0148665 A1 Jun. 17, 2010

Related U.S. Application Data

- (63) Continuation-in-part of application No. 12/336,683, filed on Dec. 17, 2008.
- (51) **Int. Cl. H01L 51/50** (2006.01)

(56) References Cited

U.S. PATENT DOCUMENTS

5,693,956 A	12/1997	Shi et al.
5,757,127 A *	5/1998	Inoguchi et al 313/507
5,882,761 A	3/1999	Kawami et al.
6,268,695 B1	7/2001	Affinito
6,465,953 B1	10/2002	Duggal
6,692,610 B2	2/2004	Low et al.

6,724,1	143 B2	4/2004	Chen et al.
6,835,9	950 B2	12/2004	Brown et al.
6,872,1	14 B2	3/2005	Chung et al.
6,949,3	889 B2	9/2005	Pichler et al.
7,015,6	540 B2	3/2006	Schaepkens et al.
7,033,8	350 B2	4/2006	Tyan et al.
7,034,4	170 B2	4/2006	Cok et al.
7,049,7	757 B2	5/2006	Foust et al.
		(Con	tinued)

FOREIGN PATENT DOCUMENTS

GB 2416621 A1 1/2006 (Continued)

OTHER PUBLICATIONS

PCT International Search Report dated Oct. 28, 2010.

(Continued)

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(57) **ABSTRACT**

An encapsulated optoelectronic device includes: a first barrier layer; an electroluminescence device coupled to the first barrier layer, and comprising a substrate and an electroluminescence element both defining a lateral side, and the electroluminescence element comprising a first electrode disposed on the substrate, a second electrode, and an optoelectronically active layer between the first and second electrodes; a second barrier layer coupled to the electroluminescence device; and an adhesive located between and connecting the first and second barrier layers, and at least coupled to the lateral side of the electroluminescence device to seal the electroluminescence device; a first conductive area electrically coupled to the first electrode and electrically insulated from the second electrode and a second conductive area; the second conductive area electrically coupled to the second electrode and electrically insulated from the first electrode and the first conductive area. A method for making the encapsulated optoelectronic device is presented.

12 Claims, 5 Drawing Sheets

